DEPARTMENT OF PHYSICS

SREE NARAYANA GURU COLLEGE CHELANNUR

ADD-ON CERTIFICATE COURSE TITLE : ALTERNATIVE ENERGY SOLUTIONS

Programme Name	: Add-on certificate course
Programme code	: AOCSNGC 01
Course Name	: Alternative Energy Solutions
Course Code	: AOCPHY02

Course Objectives :
1. Understand the fundamental principle of alternative energy sources 2. Familiarity with energy conversion technologies 3. Knowledge of energy storage systems.
Learning outcomes :
1. Analyse energy systems and identify opportunities for alternative energy integration. 2. Communicate alternative energy solutions to society

UNIT 1 :SOLAR ENERGY 10hrs

Solar radiation measurements, Solar energy collector, Physical principle of the conversion of solar radiation in to heat, solar air heaters and drying, solar cookers, solar distillation, solar furnaces, solar greenhouses, solar power plants, solar photovoltaic cells.

UNIT 2 :WIND ENERGY 10hrs

Introduction, Utilisation aspects of wind energy, Advantages and Disadvantages of wind energy, Environmental impact of wind energy, Sources/Origins of wind, Principle of wind energy conversion and wind power, Basic components of wind energy conversion system(WECS), Advantages and Disadvantages of WECS, Wind-Electric Generating Power Plant, Wind Energy Economics, Problems in operating large wind power generators.

UNIT 3 :ENERGY FROM BIOMASS 10hrs

Introduction to biomass, Biomass resource, Biomass Conversion process (Densification, Combustion and incineration, Thermo Chemical conversion, Biochemical conversion), Biogas: Biogas Applications, Biogas Plants .

Books of study:

1. Non- Conventional Energy Sources and Utilisation by R.K.Rajput, S.Chand Publishers

References

1. Non- Conventional Energy Resources by G. D. Rai, Khanna Publishers, 2008.

2. Solar Energy Fundamentals and application by H.P. Garg and J. Prakash, Tata McGraw- Hill Publishing company Ltd, 1997.

3. Solar Energy by S. P. Sukhatme, Tata McGraw- Hill Publishing company ltd,1997.

4. Solar Energy Utilization by G.D. Rai, Khanna Publishers, 1995.